TRANSLATION

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference	FOR FURTHER ACTION	See Form PCT/IPEA/416
P0301700		
International application No.	International filing date *(day/month/year)*	Priority date *(day/month/year)*
PCT/JP2004/019693	22.12.2004	25.12.2003
International Patent Classification (IPC) or national classification and IPC		
H01L31/0336, H01L27/142		
Applicant		
SHOWA SHELL SEKIYU K.K.		

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 6 sheets, including this cover sheet.

3. This report is also accompanied by ANNEXES, comprising:

   a. ☒ *(sent to the applicant and to the International Bureau)* a total of 7 sheets, as follows:

      ☒ sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).

      ☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.

   b. ☐ *(sent to the International Bureau only)* a total of (indicate type and number of electronic carrier(s))

      _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).

4. This report contains indications relating to the following items:

☒	Box No. I	Basis of the report
☐	Box No. II	Priority
☐	Box No. III	Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
☐	Box No. IV	Lack of unity of invention
☒	Box No. V	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
☐	Box No. VI	Certain documents cited
☐	Box No. VII	Certain defects in the international application
☒	Box No. VIII	Certain observations on the international application

Date of submission of the demand	Date of completion of this report
Name and mailing address of the IPEA/JP	Authorized officer
Facsimile No.	Telephone No.

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/JP2004/019693

Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ This report is based on translations from the original language into the following _____, which is the language of a translation furnished for the purposes of:

☐ international search (Rule 12.3 and 23.1(b))

☐ publication of the international application (Rule 12.4)

☐ international preliminary examination (Rule 55.2 and/or 55.3)

2. With regard to the **elements** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report)*:

☐ the international application as originally filed/furnished

☒ the description:

pages 1-2,6-10 as originally filed/furnished

pages* 3,3/1,4-5 received by this Authority on 08.09.2005

pages* _____ received by this Authority on _____

☒ the claims:

nos. 3,6 as originally filed/furnished

nos.* _____ as amended (together with any statement) under Article 19

nos.* 1-2,4-5 received by this Authority on 08.09.2005

nos.* _____ received by this Authority on _____

☒ the drawings:

sheets Fig. 1-6 as originally filed/furnished

sheets* _____ received by this Authority on _____

sheets* _____ received by this Authority on _____

☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:

☐ the description, pages _____

☐ the claims, nos. _____

☐ the drawings, sheets/figs _____

☐ the sequence listing *(specify)*: _____

☐ any table(s) related to sequence listing *(specify)*: _____

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

☐ the description, pages _____

☐ the claims, nos. _____

☐ the drawings, sheets/figs _____

☐ the sequence listing *(specify)*: _____

☐ any table(s) related to sequence listing *(specify)*: _____

* *If item 4 applies, some or all of those sheets may be marked "superseded."*

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

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Box No. V **Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Claims		YES
	Claims	1-6	NO
Inventive step (IS)	Claims		YES
	Claims	1-6	NO
Industrial applicability (IA)	Claims	1-6	YES
	Claims		NO

2. Citations and explanations (Rule 70.7)

Document 1: JP 2002-319686 A (Matsushita Electric Industrial Co., Ltd.), 31 October 2002

Document 2: JP 10-200142 A (Yazaki Corporation), 31 July 1998

(1) Document 1 sets forth a method of producing integrated thin-film solar cells, having a step of forming a molybdenum film 2 on an insulating substrate 1; a step of carrying out patterning on the molybdenum film 2 using a laser beam; a step of forming a laminated film 3 of a p-type $CuInSe_2$ thin film and an n-type CdS film; a step of carrying out patterning on said laminated film 3 by mechanical patterning; a step of forming a transparent conductive film 4; and a step of carrying out patterning on said transparent conductive film 4 by mechanical patterning (paragraphs [0004] and [0005]; fig. 5).

Document 1 also indicates that it is known that an MoSe2 layer exists at the interface of the aforementioned p-type $CuInSe_2$ thin film and the aforementioned molybdenum film (paragraph [0007]).

(2) Document 2 similarly discloses a method of producing integrated thin-film solar cells, having a step of forming a molybdenum film 2 on a substrate 1; a step of

carrying out patterning on the molybdenum film 2 by laser scribing; a step of sequentially forming a CIS film 3 and a CdS film 4 on the molybdenum film 2, a step of carrying out patterning on the CIS film 3/CdS film 4 by mechanical scribing; a step of forming a ZnO film 5; and a step of carrying out patterning on the CIS film 3/CdS film 4/ZnO film 5 by mechanical scribing (paragraphs [0004] to [0007]; fig. 5).

Document 2 also sets forth a feature wherein MoSex and the like remain on the aforementioned molybdenum film 2 (paragraph [0008]; fig. 6).

(3) As stated in Box VIII, the wording in claim 1 "when forming the aforementioned light absorbing layer on the aforementioned metal rear electrode layer…divide up into thin-film solar cell unit cells" describes a production step, and the technical feature of this claim in relation to the item produced is unclear, and does not effectively delimit the invention of this claim.

Therefore the invention set forth in claims 1 and 2 is not substantially different from the inventions set forth in documents 1 and 2.

(4) Claim 3 sets forth second and third patterning steps, wherein mechanical scribing is carried out using an incidentally produced extremely thin film layer as a solid lubricant.

However, in the light of the description of this application (see for example page 8, line 22 to page 9, line 3 and drawings (fig. 1)), this step merely involves carrying out mechanical scratching using a metal needle, and is effectively no different from the mechanical patterning (scribing) carried out in the inventions set forth in documents 1 and 2.

Box No. V **Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

Therefore the invention set forth in claims 3 to 6 is not substantially different from the inventions set forth in documents 1 and 2.

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

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Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

The wording in claim 1 "when forming the aforementioned light absorbing layer on the aforementioned metal rear electrode layer…divide up into thin-film solar cell unit cells" describes a production step, and the technical feature of this claim in relation to the item produced is unclear.